

### **REMARKS**

Pursuant to the present amendment, claims 1, 9, 11, 14, 20, 22, 23 and 27 have been amended and claims 4, 12, 13, 15 and 30-37 have been canceled. Thus, claims 1-3, 5-11, 14 and 16-29 are pending in the present application. No new matter has been introduced by way of the present amendment. Reconsideration of the present application is respectfully requested in view of the amendments and arguments set forth herein.

In the Office Action, claims 9, 11, 20, 22, 27 and 33 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. It is believed that the claim amendments in the present response render the Examiner's § 112 rejections moot. Withdrawal of the § 112 rejections is respectfully requested.

In the Office Action, claims 1, 3-4, 11, 23-24 and 29 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by Ryu (U.S. Patent Publication No. 2002/0146888). Claims 2, 7, 12-15, 18, 22, 30-33 and 35-36 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Ryu in view of Tsukamoto (U.S. Patent Publication No. 2001/0029074). Claims 5-6, 16-17 and 25 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Ryu and Tsukamoto in view of Bergman (U.S. Patent No. 6,830,628). Claims 8-9 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Ryu in view of Gilton (U.S. Patent No. 6,437,417). Claims 19-20, 26-27 and 37 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Ryu and Tsukamoto in view of Gilton. Claim 10 was rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Ryu in view of Wang (U.S. Patent No. 6,448,167). Claims 21 and 28 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Ryu and Tsukamoto in view of Wang. Claim 34 was rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Ryu and Tsukamoto in view of Funabashi (U.S.

Patent Publication No. 2001/0039123). Applicants respectfully traverse the Examiner's rejections.

As the Examiner well knows, an anticipating reference by definition must disclose every limitation of the rejected claim in the same relationship to one another as set forth in the claim. *In re Bond*, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). To the extent the Examiner relies on principles of inherency in making the anticipation rejections in the Office Action, inherency requires that the asserted proposition necessarily flow from the disclosure. *In re Oelrich*, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981); *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1463-64 (Bd. Pat. App. & Int. 1990); *Ex parte Skinner*, 2 U.S.P.Q.2d 1788, 1789 (Bd. Pat. App. & Int. 1987); *In re King*, 231 U.S.P.Q. 136, 138 (Fed. Cir. 1986). It is not enough that a reference could have, should have, or would have been used as the claimed invention. "The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Oelrich*, at 326, quoting *Hansgirk v. Kemmer*, 40 U.S.P.Q. 665, 667 (C.C.P.A. 1939); *In re Rijckaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993), quoting *Oelrich*, at 326; see also *Skinner*, at 1789. "Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Skinner*, at 1789, citing *Oelrich*. Where anticipation is found through inherency, the Office's burden of establishing *prima facie* anticipation includes the burden of providing "...some evidence or scientific reasoning to establish the reasonableness of the examiner's belief that the functional limitation is an inherent characteristic of the prior art." *Skinner* at 1789.

Moreover, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success.

Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. Moreover, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); M.P.E.P. § 2143.03.

With respect to alleged obviousness, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. The consistent criterion for determining obviousness is whether the prior art would have suggested to one of ordinary skill in the art that the process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); *In re O'Farrell*, 853 F.2d 894 (Fed. Cir. 1988); M.P.E.P. § 2142.

Pursuant to the present amendment, independent claims 1, 14 and 23 have been amended to more specifically describe Applicants' invention. More specifically, these independent claims have been amended to recite removing a native oxide layer from a surface layer of the doped

regions and, after removing the native oxide layer, and without performing an oxidation process on the surface layer, removing the surface layer of the doped regions by performing an etching process using a diluted etch solution. As thus amended, it is respectfully submitted that all pending claims are allowable over the art of record.

It is respectfully submitted that Ryu, the Examiner's primary reference, does not disclose or suggest the inventions set forth in the pending claims. Ryu discloses a process whereby a diluted etch process is performed to remove a native oxide layer 22 from above a defect layer 24. ¶ 22; Figure 2. Thereafter, an oxidation process is performed to form the oxide layer 34 and thereby convert most of the defect layer 24 into the silicon oxide layer 34. ¶ 23; Figure 3. Next, as shown in Figure 4, a wet etching process is performed to remove the silicon dioxide layer 34. ¶ 24; Figure 4.

As thus understood, Ryu is fundamentally different from the presently claimed inventions. In Ryu, it is clear that the defect layer 24 is first oxidized prior to its removal. Ryu is also clear that etching and implantation processes can damage the surface of the substrate. ¶ 21.

The present claims all explicitly recite that, after the native oxide is removed, no oxidation process is performed on the surface layer, and that an etching process is performed to remove the surface layer. If anything, Ryu can be understood to teach away from the currently pending claims. That is, Ryu clearly states that etching processes can damage the surface layer. Thus, when viewing Ryu, one skilled in the art would not be motivated to remove the defect layer 24 by an etching process without converting it to an oxide first.

A recent Federal Circuit case makes it crystal clear that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and

common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. “Our case law makes clear that the best defense against the subtle but powerful attraction of hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” *Teleflex v. KSR Intern. Co.*, 119 Fed. Appx. 282 (Fed. Cir. 2005) (unpublished) (citations omitted). It is respectfully submitted that any attempt to assert that the invention defined by the currently pending claims would have been obvious in view of the prior art of record constitutes an impermissible use of hindsight using Applicants’ disclosure as a roadmap.

For at least the aforementioned reasons, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4055 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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